

PROJECT SUMMARY

The Town of Groton Public Works Department intends to purchase a single engine mechanical sweeper on a Freightliner M2 chassis with a GVWR of not less than 33,000 pounds.

TECHNICAL SPECIFICATIONS

GENERAL:

It is the intent of this specification to purchase one (1) new and unused street sweeper having a six wheel configuration with a single engine for propulsion and sweeping, the following specification is based upon an Elgin Broom Bear street sweeper mounted on a Freightliner M2 chassis

In comparing bids, only those units which are fully compliant with our bid specifications will be considered. A purchase order will be awarded for the product which best serves the interests of the town when cost, product, safety, quality and delivery are considered. The Town of Groton reserves the right to reject any or all bids or any part thereof, and to waive any minor technicalities. All supplies, parts and/or attachments not specifically mentioned but necessary to ensure a complete and safe product shall be furnished by the successful bidder. All materials shall conform in strength and durability to what is recommended in good engineering practices, and any added allied equipment shall be installed in such a manner so as not to adversely affect the original manufacturer's product.

The successful bidder shall be established in the street sweeper industry with over 5 years experience.

SAFETY:

For safety, the completed equipment package shall comply with all applicable Federal and State Motor Vehicle and OSHA regulations, safety standards, codes, and any other applicable regulations in force at the time of delivery. Certification of Federal Motor Vehicle Safety Standard (FMVSS) compliance must be submitted with the proposal. All applicable warnings and warning labels required by law must also be complied with accordingly.

STANDARDIZATION:

It is expected that all equipment delivered under the contract resulting from these specifications will be built with identical and interchangeable parts and components. If any substitutions or changes are made for such reasons as production or improvement of product, the Public Works Department Fleet Manager must approve said substitutions or changes. For safety, service, and parts availability the chassis shall be of a commercially available conventional cab type configuration (Freightliner M2 or equal). A purpose built chassis manufactured by the sweeper company will not be acceptable.

DELIVERY:

The successful bidder shall have 90 days from the date the purchase order is received to deliver the completed vehicle to the Town of Groton Highway Garage at 108 Groton Long Point Rd. Groton, CT 06340

Approval from the Public Works Fleet Manager must be obtained to extend the time needed to complete the delivery. Arrangements may be made by calling (860) 448-4075, Monday through Friday, 7AM until 3PM.

WARRANTY:

All work performed shall have a full, no cost, and 100% parts and labor coverage for a period of 1 year. It shall be as required herein or the standard normally offered, if greater. All warranties and guaranties shall begin at the time when the equipment is placed into Town service. The Department of Public Works Fleet Manager will notify the awarded contractor when each piece of equipment is placed into service.

INSPECTION:

The Public Works Fleet Manager reserves the right to inspect the sweeper during all production stages at the winning bidder's facility. The Department of Public Works will bear the expenses related to the production inspection trips for its employees.

Production inspections at various stages may also take place where the allied equipment is being installed and the same conditions shall apply.

SPECIFICATIONS FOR SINGLE ENGINE MECHANICAL SWEEPER MOUNTED ON FREIGHTLINER M2 CHASSIS

SECTION 1 - CHASSIS

CHASSIS:

The chassis shall be capable of safely propelling the sweeper loaded to the maximum GVWR, under all normal sweeping and transport conditions. The completed vehicle shall be rated for carrying an 11,000 lbs. load in the hopper at highway speeds of 55 MPH and should not be restricted by tire limitations. The manufacturer shall certify that the pass-by noise level at 50 feet (per SAE J 1077) while sweeping, does not exceed 79 dB(A). The front axle shall be an I-beam type, 68" track; with a minimum capacity of 10,000 lbs. equipped with a leaf spring suspension and shock absorbers as standard equipment to avoid high stress areas and cracking of the chassis. The rear axle shall be a two-speed rear axle and have a 6.17/8.42 ratio. **(An auxiliary transmission for sweeping is not acceptable)** The rear axle shall have a minimum capacity of 23,000 lbs. with the rear suspension provided through a twin air spring suspension system having a minimum capacity of 23,000 pounds. The turning radius shall not exceed 19ft 7in curb to curb, with a front axle steering cut of 50 degrees minimum. The Brakes shall be full air dual circuit type with auto slack adjusters, front and rear. Wabco ABS brakes shall be supplied. Hydraulic brakes shall not be acceptable. A complete Auto-lube system shall be installed to grease the chassis and sweeper modules.

ENGINE:

The sweeper shall be equipped with a 6 cylinder diesel engine with a minimum horsepower rating of not less than 260HP at 2,200 RPM with a minimum torque of 720 ft.-lbs. @ 1,300 RPM. The engine shall meet all applicable EPA and DOT emissions standards, and be equipped with a low oil pressure and high water temperature warning system integrated into the ignition system to prevent engine damage. The vehicle shall be equipped with a minimum 50 U.S. gallon fuel tank and minimum 6 U.S. gallon diesel exhaust fluid tank.

WHEEL BASE:

The wheel base shall not exceed 136 inches, cab-to-axle shall be 70 in. overall length shall not to exceed 268 inches. Outside width in transport mode shall not to exceed 8'. Overall height not to exceed 9'

TRANSMISSION:

The sweeper shall be equipped with an Allison 3500RDS or equal automatic transmission and shall have five forward speeds and one reverse. The transmission shall be equipped with heavy-duty oil cooler, magnetic drain plugs and utilize Synthetic Transmission fluid (TES-295 compliant).

TIRES AND WHEELS:

The front and rear tires shall be first line quality tubeless radial tires, 11R X 22.5, 14 ply rating. The rear axle shall be equipped with dual tires for load capacity and stability. The tires shall be mounted on 10 hub piloted steel disc 22.5/8.25 rims, rear mud flaps shall be supplied.

CAB:

The cab shall be a full width Aluminum cab with a one-piece fiberglass tilting hood, for maximum visibility the forward line of sight (distance from operating position to view of ground) shall be 16 feet maximum. The steering shall be full power with dual operator controls. The dual steering shall include right and left steering wheels, brake and throttle pedals, center mounted single windshield wiper control, dual turn signal controls, and tilt adjustment. The cab shall include dual OEM dash mounted instrumentation, including speedometer, odometer, tachometer, hour meter, water temperature, oil pressure, voltmeter, fuel gauge and transmission temperature gauge. All sweeper controls shall be mounted between the two operator stations for easy reach and visibility, the center console shall have Left / Right primary driver switch which changes controls for the operator station and instrumentation from left to right and back. For safety driver switch can only be activated with the parking brake applied. Dual Bostrom 905 high back air ride seats with black cordura cloth covers and dual arm rests shall be supplied, each seat shall have a 3-point seat belt with automatic retractors. The cab shall include two (2) outside heated and power adjustable west coast type mirrors with molded in 8-inch convex auxiliary mirrors. The cab shall also have twin 12" convex mirrors as well as right and left hand fender mount 8" convex mirrors. The hydraulic functions shall be controlled by a single rocker switch which activates the hydraulic power which is supplied from the hot shift PTO on the transmission. The hydraulic system must be able to be disengaged in case of a hydraulic oil leak, thus allowing transport capability without draining the hydraulic oil tank. **Full time live hydraulics or the use of an auxiliary transmission in the drive train will not be acceptable.** The cab interior environment shall be fully conditioned by fresh air heater / ventilator / defroster / air conditioning with a three speed fan. Manufacturer must certify that cab noise level while operating does not exceed 82 dB(A) (per J919 testing).

ELECTRICAL:

The chassis shall utilize a 12-Volt negative ground system with a 160-amp alternator charging dual 12 volt maintenance free batteries with 1850 CCA's. All lighting shall be LED and meet DOT safety requirements including combination stop and tail lights, backup lights, sealed multiple beam headlights, high beam - low beam switch, adjustable side broom and main broom spotlights, clearance and running lights, front parking and signal lights, four way flashers, dome light, illuminated gauges and instrument panel, illuminated rocker switches, self-canceling directional signals, and hazard switch. There shall be front, rear, and left and right clearance lights. Warning lights shall indicate glow plug, air brakes, stop and tail light failure, charging system, park brake, engine oil system, hydraulic oil filter restriction and low spray water.

SECTION 2 – SWEEPER

MAIN BROOM:

The main broom shall be hydraulically raised/lowered and capable of movement independent of the conveyor assembly to effectively sweep varying debris. The main broom shall be direct drive by a hydraulic motor and shall be not less than 34" diameter and not less than 60" long. Main broom rotation speed shall be constant, governed by a load sensing hydraulic system, regardless of engine RPM or ground speed and shall be full floating with self-aligning bearings. Main broom side plates shall be equipped with heavy-duty rubber drag shoes to minimize pavement marking.

SIDE BROOM:

The side brooms shall be driven by a hydraulic motor directly mounted to broom disc plate, the broom down pressure shall be adjustable by operator from the cab while moving. The side broom shall be the vertical digger type, trailing arm design, mounted on right and left side. Broom rotation speed shall be constantly governed by a load sensing hydraulic system, regardless of engine RPM or sweeper ground speed. The broom shall be five (5) plastic segments, filled with 26" long tempered wire and shall be cross-drilled for 5 or 4 segment usage. The Broom diameter shall not be less than 44", protruding not less than 13" beyond outside of tire while sweeping. Each broom shall have a LED spotlight for night operation.

CONVEYOR:

The conveyor shall be capable of loading the hopper to 100% of its capacity. To maintain heavy loads of material the conveyor shall be a high strength belt type with 13 molded-in full width cleats to carry material to the hopper and be not less than 54" wide. The conveyor shall be capable of effectively sweeping debris of varying sizes without the need to make any manual adjustments to the conveyor system. An in cab conveyor height adjustment, independent of the main broom shall be supplied. To provide proper clearance during variable sweeping conditions, the minimum conveyor height shall be capable of being set independent of main broom height. The conveyor assembly shall be enclosed with a right and left hand mounted quick detachable fiberglass side panels.

A squeegee type flight system that drags material will not be acceptable. An audible conveyor stall alarm is to be provided as a warning to the operator. The conveyor shall be reversible in direction and the main broom shall stop rotation while conveyor is reversed.

HOPPER:

For safety, the hopper shall be right side dumping, allowing an operator to observe the dump target and surrounding area at all times from the cab, without the use of mirrors. All dump controls to be cab mounted. Volumetric capacity shall be not less than 4.5 cubic yards, useable capacity not less than 3.3 yards. A hopper inspection door shall be supplied. The hopper shall dump at varying heights ranging from 38 inches through a height of 10 feet. Dump angle to be 50 degrees minimum. Fixed height dump systems are not allowed. The lift mechanism shall be a double stage, scissors lift system with hopper lift cylinders that have a 3.5" x 33.5" stroke minimum, and hopper dump cylinders with a 3.5" x 19.8" stroke minimum with a total lift capacity of not less than 11,000 lbs. The hopper shall provide not less than an 11" side shift of load for maximum dumping efficiency and for extra clearance between sweeper and dump truck. Minimum clearance between sweeper and truck shall be 28". The load shall be visible at all times from the cab. The hopper shall be constructed of a 7 gauge abrasion resistant steel floor and an 11 gauge door, top, and sides.

Note: Sweepers that require use of jack stands and/or outriggers to stabilize chassis during dumping procedure shall not be acceptable.

WATER SYSTEMS:

The sweeper shall have a water tank capacity of not less than 360 U.S. gallons, the tank shall be constructed of a non-metallic, non-rusting polyethylene material with a removable manhole cover for tank access. The water pump shall be diaphragm type capable of running dry without damage. A water level gauge indicator shall be located within the cab. The sweeper shall be equipped with brass spray nozzles for dust suppression. 3 spray nozzles shall be over each side broom, 3 spray nozzles shall be located at the main broom, and a full width front bumper mounted spray bar shall be supplied. Adjustable water valves to each area, side broom left or right, and broom spray bar shall be controlled from within the cab. The sweeper shall also be equipped with a lower roller cleanout. The water fill hose shall be not less than 15' in length, equipped with 2 1/2" Banjo style fitting with and in-line water filter with shut off valve in water system to prevent contaminants from entering the water system

HYDRAULIC SYSTEM:

The hydraulic system shall be installed in such a manner that meets best engineering practices in terms of protecting the hydraulics hoses and lines from wear and abrasion. The installation of chaffing protection where necessary and the running of hydraulic hoses in a safe and efficient manner is paramount. The system shall have a reservoir capacity of 23 gallons with an outside level and temperature indicator. The system shall be equipped with a twin pump, variable displacement piston type that are directly driven, by a hot shift PTO, with load sensing to adjust flow based upon hydraulic oil demand in the sweeping gear to maximize efficiency and reduce heat for the longevity of the entire hydraulic system. To prevent contamination of the reservoir during the dump cycle, the reservoir vent shall be equipped with a 40 micron, breather filter. The return lines shall have a 10 micron filter with cab mounted restriction indicator. To minimize environmental damage caused by leaking fittings, all pressure hydraulic fittings must be ORFS type. All hydraulic solenoids shall be located in a single easily accessible location.

ELECTRICAL SYSTEM:

The sweeper electrical system shall be integral to the chassis electrical system, the wiring harnesses shall be color-coded and hot stamped with circuit name. For safety, all electrical circuits must be protected by circuit breakers or fuses. The unit shall be equipped with a rear LED arrow stick, with LED strobe lights mounted in the following locations: two (2) upper rear facing, two (2) lower rear facing, two (2) grill mount forward facing, two (2) cab hood side facing, vehicle lighting shall also include rear identification lights, side broom and rear clearance lights. The sweeper module shall be supplied with a self-diagnostic system which details by code and function through a cab mounted

LED panel any electrical function issue that may arise. Once the issue is addressed and corrected, the diagnostic system will automatically re-set without the use of a laptop or diagnostic tool. The sweeper shall also have an electronic back-up alarm for additional warning and safety when chassis is in reverse.

CONTROLS:

All sweeper controls shall be mounted on an adjustable central console located between the left and right operator's position. The controls shall include all sweep, hopper, elevator, and lighting functions. The controls for sweeping, spraying water, and lighting functions shall all be controlled by conventional rocker switches, there shall be a single rocker style switch included for the three operation modes: sweep/transport/dump. The sweeper shall have a raise-in-reverse feature that automatically raises all engaged sweep functions when the chassis is in reverse gear then automatically lowers all engaged sweep functions when the chassis is placed in a forward gear.

SWEEPER MISCELLANEOUS:

The center console instruments shall include right and left side broom down pressure gauges, hydraulic filter restriction indicator, hydraulic oil temperature gauge, and spray water level indicator. The oil cooler, hydraulic tank and electrical locker shall be located behind and protected from the elements and vandals by twin fiberglass latching clamshell doors opening 180 degrees and providing 270 degrees of complete accessibility to all maintenance components. A rear compartment to include a RH mounted lockable stainless steel toolbox; 24 inches long x 13.5 inches wide x 6 3/8 inches tall for operator designated tools.

PAINT:

All visible exterior metallic surfaces shall be coated prior to assembly with polyester powder coat. The paint must be a minimum of 2 mils thick. The uses of acrylic enamels and/or polyurethane's are not acceptable. The vehicle color shall be white.

MANUALS:

A complete set of chassis manuals shall be supplied along with a complete parts manual, operation and maintenance manual and engine manual. All manuals shall be originals; photocopies shall not be acceptable.

SERVICE AND TRAINING:

Vendors shall have a full parts and service facility within a 60 mile radius of the Town of Groton. A manufacturer's qualified technician shall provide complete training to an unlimited amount of personnel at the Town Garage. Training shall include an operator's session on safety, operation, everyday maintenance operations and in-depth session on service and repair for the Town of Groton mechanics.

OPTIONAL TRADE IN:

The Town of Groton may choose, at its sole discretion, to trade in the town's 2002 Broombear street sweeper, in "AS-IS" condition at the time of bid opening. This vehicle is available for inspection at the Town Garage. Bidder shall state the amount of allowance to be deducted from the bidder's proposal, should this option be selected